

1. An apparatus for rapidly, deterministically transferring data, the apparatus comprising:
 - a processor configured to process data;
 - a memory configured to store the data; and
 - a boot control module configured to boot the processor with a standard operating kernel under a first selected condition and to reboot the processor with a data transfer kernel under a second selected condition.
2. The apparatus of claim 1, wherein the data transfer kernel is configured to support a data save operation.
3. The apparatus of claim 2, wherein the data save operation is selected from the group consisting of a storage configuration operation, a transfer process loading operation, a data transfer operation, and a system shutdown operation.
4. The apparatus of claim 3, wherein the data transfer kernel is configured to exclusively support the data save operation.
5. The apparatus of claim 1, wherein the memory module further comprises data bits for marking data to be saved during a data save operation.
6. The apparatus of claim 5, wherein the standard operating kernel is further configured to mark data to be saved during a data save operation.
7. The apparatus of claim 1, wherein the data transfer kernel is configured to configure a storage device for specialized data save operations.

1 8. The apparatus of claim 1, wherein the data transfer kernel is configured to conduct a
2 power down procedure.

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4 9. The apparatus of claim 1, wherein the first selected condition comprises a normal
5 operating state and the second selected condition comprises a loss of power.

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7 10. An apparatus for rapidly, deterministically transferring data to a storage device, the
8 apparatus comprising:
9 a storage device configured to store data;
10 a data transfer kernel configured to support data saving operations; and
11 a computer in communication with the storage device, the computer configured to
12 load the data transfer kernel during a reboot procedure.

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14 11. The apparatus of claim 10, wherein the data transfer kernel is configured to
15 exclusively support devices and processes required to save data to the storage device.

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17 12. The apparatus of claim 10, wherein the data transfer kernel is configured to power
18 down the computer and the storage device.

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20 13. An apparatus for rapidly, deterministically saving data, the apparatus comprising:
21 means for saving data;
22 means for detecting a data save condition; and
23 means for booting a processor with a data transfer kernel, the data transfer kernel
24 configured to save data to the means for saving data.

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26 14. The apparatus of claim 13, further comprising means for configuring the means for
27 saving data for data save operations.

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2 15. The apparatus of claim 13, further comprising means for booting a standard
3 operating kernel for normal operation.

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5 16. The apparatus of claim 13, further comprising means for marking data to be saved
6 during a data save operation.

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8 17. A system for rapidly, deterministically saving data to a storage device, the system
9 comprising:

10 a processor configured to process data;

11 a memory configured to provide volatile storage for the data;

12 a storage device configured to provide non-volatile storage for the data; and

13 a boot control module configured to boot the processor module with a standard
14 operating kernel under a first selected condition and to reboot the processor with a data
15 transfer kernel under a second selected condition.

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17 18. The system of claim 17, wherein the standard operating kernel is configured to mark
18 data in the memory module to be saved by the data transfer kernel during a data save
19 operation.

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21 19. The system of claim 17, wherein the data transfer kernel exclusively supports
22 devices and processes required to save data.

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24 20. The system of claim 17, wherein the data transfer kernel configures the processor for
25 data saving operations.

1 21. The system of claim 17, wherein the data transfer kernel configures the storage
2 device for specialized data saving operations,

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4 22. The system of claim 17, wherein the data transfer kernel is configured to conduct a
5 power down procedure.

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7 23. The system of claim 17, wherein the first selected condition comprises a normal
8 operating state and the second selected condition comprises a loss of power.

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10 24. A method for rapidly, deterministically saving data, the method comprising:
11 detecting a data save condition; and
12 rebooting a processor module with a data transfer kernel.

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14 25. The method of claim 24, further comprising exclusively supporting devices and
15 conducting processes required to save data to a storage device.

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17 26. The method of claim 24, further comprising configuring the storage device to receive
18 data.

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20 27. The method of claim 24, further comprising marking data to be saved by the data
21 transfer kernel.

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23 28. A computer readable storage medium comprising computer readable program code
24 for rapidly, deterministically saving data, the program code configured to:
25 boot a processor module with a data transfer kernel; and
26 transfer data from a memory module to a storage device.
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1 29. The computer readable storage medium of claim 28, wherein the computer readable
2 code is further configured to mark data in the memory module to be saved to the storage
3 device.

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5 30. The computer readable storage medium of claim 28, wherein the computer readable
6 code is further configured to exclusively support devices and processes required to save
7 data to the storage device.